UNITED STATES PATENT AND TRADEMARK OFFICE

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09/772,444	01/29/2001	Nidzara Dellien	34650-00565USPT P13745US	1047

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EXAMINER
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ART UNIT	PAPER NUMBER
2655	

DATE MAILED: 12/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _07 September 2004_.

2a)☒ This action is FINAL.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-20 and 35-45_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-20 and 35-45_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In response to the Office Action mailed June 10, 2004, applicant submitted an

amendment filed on September 7, 2004, in which the applicant amended independent

claims 1,13 and 35 and requested reconsideration.

Response to Arguments

2.   Applicant argues that the cited combination of Mekuria and Dobson fails to teach,

suggest or render obvious one of the distinguishing features, namely, a code

compression/decompression unit further comprising a demultiplexer/multiplexer, a

lossless compression/decompression block and a lossy compression/decompression

block.

However, applicant's arguments with respect to claims 1-2, 13-14 and 35 have

been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

4.   **Claims 1-2, 4, 6, 9-14, 16, 18, 35, 37, 39 and 42-46** are rejected under 35

U.S.C. 103(a) as being unpatentable over Mekuria et al. (SE 9 800 831 A, Ericsson

Telefon AB L M, Communication Device and Method of Operation), hereinafter

referenced as Mekuria, in view of Huang et al. (U.S. Patent No. 5,541,594), hereinafter

referenced as Huang.

       Regarding **claims 1 and 13**, Mekuria discloses a communication apparatus and

method comprising:

       an encoder (figure 1, element 103) for encoding a signal (page 7, lines 27-29);

       a code compression unit (figure 1, element 104), coupled to the encoder, for

compressing the encoded signal using a lossy scheme (page 7, lines 29-32 and page

14, lines 10-23); and

       a memory (figure 1, element 116), coupled to an output of the code compression

unit, for storing the compressed encoded signal (page 9, lines 10-14), but lacks

compressing the encoded signal using a lossless scheme wherein the code

compression unit further comprises a demultiplexer, a lossless compression block and

a lossy-compression block.

       Huang discloses a compression apparatus and method for compressing the

encoded signal (data compression) using a lossless as well as a lossy scheme (column

2, lines 38-45 with figure 2) wherein the code compression unit (figure 2, element 20)

further comprises a demultiplexer (figure 2, element 15), a lossless compression block

(figure 2, element 82) and a lossy-compression block (figure 2, element 52), to reduce storage.

Although, figure 2 shows the multiplexer (element 30) coupled to the compression unit and the demultiplexer (element 32) coupled to the decompression unit. That is for transmission purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made the input (figure 2, element 15) inputs a demultiplexed signal to determine the bandwidth available, to be able to obtain a correct channel, meanwhile that output signal is a multiplexed signal. With the code compression unit further comprising a demultiplexer, a lossless compression block and a lossy-compression block, it produces an encoded information signal and a reconstructed signal with high quality compression, to reduce storage, as taught by Huang (column 2, lines 38-45).

Regarding **claims 2 and 14**, Mekuria discloses an apparatus and method further comprising:

a code decompression unit (figure 1, element 109), coupled to the memory, for decompressing the stored signal using a lossy scheme (page 10, line 18 and page 10, line 28 – page 11, line 17);

a decoder (figure 1, element 110), coupled to the code decompression unit, for decoding the decompressed signal (page 8, lines 33-36); and

outputting the decoded signal (page 6, line 36 – page 7, line 2), but lacks decompressing the stored signal using a lossless scheme wherein the code

decompression unit further comprises a multiplexer, a lossless decompression block and a lossy-decompression block.

Huang discloses decompressing the stored signal (figure 2, element 34) using a lossless scheme (figure 2, element 86) wherein the code decompression unit (figure 2, element 34) further comprises a multiplexer (figure 2; the output), a lossless decompression block (figure 2, element 86) and a lossy-decompression block (figure 2, element 90), to reverse the lossless compression performed by compression.

Although, figure 2 shows the multiplexer (element 30) coupled to the compression unit and the demultiplexer (element 32) coupled to the decompression unit. That is for transmission purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made the input (figure 2, element 15) inputs a demultiplexed signal to determine the bandwidth available, to be able to obtain a correct channel, meanwhile that output signal is a multiplexed signal. With the code decompression unit further comprising a multiplexer, a lossless decompression block and a lossy-decompression block, it produces an encoded information signal and a reconstructed signal with high quality compression, to reduce storage, as taught by Huang (column 2, lines 38-45).

Regarding **claims 4 and 16**, Mekuria discloses an apparatus and method of the encoding a signal having high inter-frame redundancy (column 10, lines 1-7), but lacks wherein the lossless scheme is used to compress parameters.

Huang discloses an apparatus and method wherein the lossless scheme is used to compress parameters (figure 2, elements 82 and 86), to receive a compact representation of the reconstructed signal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria's invention such that it compresses the encoded signal using a lossless scheme, to achieve a compact representation while minimizing distortion of the reconstructed output signal, as taught by Huang (column 2, lines 44-46)

Regarding **claims 6, 18 and 39**, Mekuria discloses an apparatus and method wherein the lossy scheme is used to compress some parameters of the encoded signal having low inter-frame redundancy (crucial bits; page 10, lines 1-7).

Regarding **claim 9**, Mekuria discloses an apparatus and method further comprising a switch (figure 3, element 323) that enables an encoded signal received by a receiver to be compressed by the code compression unit and stored in the memory (abstract; page 11, line 19 – page 12, line 11).

Regarding **claim 10**, Mekuria discloses an apparatus and method further comprising a switch (figure 4, element 424) that enables the stored signal to be decompressed by the decompression unit and output from a transceiver (abstract; page 4, lines 7-14 and page 12, line 13 – page 13, line 8).

Regarding **claim 11**, Mekuria discloses an apparatus and method further comprising an operator interface unit (page 9, lines 10-14).

Regarding **claim 12**, Mekuria discloses an apparatus and method wherein the apparatus is a mobile telephone (mobile phone; page 14, lines 25-28) or a communication device (abstract; figure 1, element 100 and page 6, lines 20-22).

Regarding **claim 35**, Mekuria discloses an apparatus and method for decompressing a signal as mentioned in claim 2, in addition comprises the steps of:

decompressing, within a decompressing unit (109), a compressed encoded digital signal using a lossy scheme (page 7, lines 29-32 and page 14, lines 10-23);

decoding, within a decoder (110), the decompressed signal (page 8, lines 33-36); and

outputting the decoded signal (page 6, line 36 – page 7, line 2), but lacks decompressing a compressed encoded digital signal using a both a lossy and lossless scheme wherein the code decompression unit further comprises a multiplexer, a lossless decompression block and a lossy-decompression block.

Huang discloses decompressing the stored signal (figure 2, element 34) using a lossy (figure 2, element 90) and lossless scheme (figure 2, element 86) wherein the code decompression unit (figure 2, element 34) further comprises a multiplexer (figure 2; the output), a lossless decompression block (figure 2, element 86) and a lossy-decompression block (figure 2, element 90), to reverse the lossless compression performed by compression.

Although, figure 2 shows the multiplexer (element 30) coupled to the compression unit and the demultiplexer (element 32) coupled to the decompression unit. That is for transmission purposes.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made the input (figure 2, element 15) inputs a demultiplexed signal to determine the bandwidth available, to be able to obtain a correct channel, meanwhile that output signal is a multiplexed signal. With the code decompression unit further comprising a multiplexer, a lossless decompression block and a lossy-decompression block, it produces an encoded information signal and a reconstructed signal with high quality compression, to reduce storage, as taught by Huang (column 2, lines 38-45).

Regarding **claim 37**, Mekuria discloses a communication apparatus and method further comprising the step of losslessly compressing parameters of the encoded digital signal, the parameters having high inter-frame redundancy (non-crucial bits; page 10, lines 1-7).

Regarding **claim 38**, Mekuria discloses a communication apparatus and method wherein the parameters of the encoded digital signal having high inter-frame redundancy include coefficients of a long term filter and codebook gains.

Regarding **claim 42**, Mekuria discloses a communication apparatus and method, but lacks wherein the demultiplexer demultiplexes parameters of the encoded signal into losslessly-compressed, lossy compressed and uncompressed parameters.

Huang discloses an apparatus and method wherein the demultiplexer demultiplexes parameters of the encoded signal into losslessly-compressed (figure 2, element 82), lossy compressed (figure 2, element 52) and uncompressed parameters (figure 2, element 15), to obtain a good compression ratio, average error and data rate.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria's apparatus and method wherein the demultiplexer demultiplexes parameters of the encoded signal into losslessly-compressed, lossy compressed and uncompressed parameters, to produce an encoded information signal and a reconstructed signal with high quality compression, which reduces storage, as taught by Huang (column 2, lines 38-45).

Regarding **claim 43**, Mekuria discloses a communication apparatus and method, but lacks wherein the losslessly-compressed parameters are output by the demultiplexer to the lossless compression block.

Huang discloses an apparatus and method wherein the losslessly-compressed parameters are output by the demultiplexer (figure 2, element 32) to the lossless compression block (figure 2, element 86), to reverse the lossless compression performed by compression.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria's apparatus and method wherein the losslessly-compressed parameters are output by the demultiplexer to the lossless compression block, to produce an encoded information signal and a reconstructed signal with high quality compression, which reduces storage, as taught by Huang (column 2, lines 38-45).

Regarding **claim 44**, Mekuria discloses a communication apparatus and method, but lacks wherein the lossy-compressed parameters are output by the demultiplexer to the lossy-compression block.

Huang discloses an apparatus and method wherein the lossy-compressed parameters are output by the demultiplexer (figure 2, element 32) to the lossy-compression block (figure 2, element 90), to reverse the lossless compression performed by compression.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify wherein the lossy-compressed parameters are output by the demultiplexer to the lossy-compression block, to produce an encoded information signal and a reconstructed signal with high quality compression, which reduces storage, as taught by Huang (column 2, lines 38-45).

Regarding **claim 45**, Mekuria discloses a communication apparatus and method, but lacks wherein the losslessly compressing parameters of the encoded digital signal are retrieved from a memory and decompressed by the lossless decompression block.

Huang discloses losslessly compressing parameters of the encoded digital signal are retrieved from a memory (column 5, lines 28-32) and decompressed by the lossless decompression block (figure 2, element 86), to reverse the lossless compression performed by compression.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria's apparatus and method wherein the losslessly compressing parameters of the encoded digital signal are retrieved from a memory and decompressed by the lossless decompression block, to produce an encoded information signal and a reconstructed signal with high quality compression, which reduces storage, as taught by Huang (column 2, lines 38-45).

Regarding **claim 46**, Mekuria discloses a communication apparatus and method,
but lacks wherein the lossy compressing parameter of the encoded digital signal are
retrieved from a memory and decompressed by the lossy-decompression block.

Huang discloses lossy compressing parameter of the encoded digital signal are
retrieved from a memory (column 5, lines 28-32) and decompressed by the lossy-
decompression block (figure 2, element 90), to reverse the lossless compression
performed by compression.

Therefore, it would have been obvious to one of ordinary skill in the art at the
time the invention was made to modify Mekuria's apparatus and method wherein the
lossy compressing parameter of the encoded digital signal are retrieved from a
memory and decompressed by the lossy-decompression block, to produce an encoded
information signal and a reconstructed signal with high quality compression, which
reduces storage, as taught by Huang (column 2, lines 38-45).

5.   **Claims 3, 15 and 36** are rejected under 35 U.S.C. 103(a) as being unpatentable
over Mekuria in view Huang, as applied to claim 1 above, in further view of Kroon (U.S.
Patent No. 5,664,055).

Regarding **claims 3, 15 and 36**, Mekuria discloses a communication apparatus
and method, but lacks wherein the quality of the signal is decompressed using the

lossy scheme and is improved by changing weighting factors and a tilt factor in a post filter.

Huang discloses the apparatus and method wherein the quality of the signal is decompressed using a lossy and lossless scheme (figure 2, elements 86 and 90), but lacks the method of changing weighting factors and a tilt factor in a post filter.

Kroon discloses an apparatus and method of changing weighting factors (adjusting weighting variable) and a tilt factor (spectral envelope tilted) in a post filter (column 8, lines 36-37 and column 27, lines 58-67), to enhance the reconstructed speech signal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria in combination with Huang's apparatus and method such that it changes weighting factors and a tilt factor in a post filter, to improve the performance for input signals with a flat frequency-response, as taught by Kroon (column 8, lines 53-54).

6.   **Claims 5, 17 and 38** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mekuria in view of Huang, as applied to claim 1 above, in view of Gao (Publication Number US 2002/0103638).

Regarding **claims 5, 17 and 38**, Mekuria in view of Huang discloses a communication apparatus and method wherein the parameters of the encoded signal having high inter-frame redundancy (Mekuria; non-crucial bits; page 10, lines 1-7)

includes coefficients of a long term filter (long term prediction; page 7, lines 35-38), but

lacks codebook gains.

Gao discloses an apparatus and method wherein the parameters of the encoded

signal (encode speech signals; abstract and column 2, paragraph 0035) having high

inter-frame redundancy (full-rate speech coder algorithm; column 3, paragraph 0061

and column 10, paragraph 0143) includes coefficients of a long term filter and

codebook gains (column 3, paragraph 0059-0061), to produce synthesized speech.

Although Gao does not specifically discloses high inter-frame redundancy, the

applicant acknowledges that a GSM system using a full-rate speech coder comprising

bits of which are considered to be crucial (highest priority level; page 30, lines 1-14).

Therefore, it would have been obvious to one of ordinary skill in the art at the

time the invention was made to modify Mekuria in combination with Huang's apparatus

and method such that the encoded high inter-frame redundancy signal have including

coefficients of a long term filter and codebook gains, to improve the use of

communication systems employing codebooks by utilizing several predictions to

capture redundancy in voiced speech while minimizing data to encode speech, as

taught by Gao (column 2, paragraph 0035).

7.   **Claims 7-8, 19-20 and 40-41** are rejected under 35 U.S.C. 103(a) as being

unpatentable Mekuria in view of Huang, as applied to claim 1 above, in further view of

Crupi et al. (U.S. Patent No. 6,195,636), hereinafter referenced as Crupi.

Regarding **claims 7, 19 and 40**, Mekuria in view of Huang discloses a communication apparatus and method wherein the parameters of the encoded signal have low inter-frame redundancy (Mekuria; crucial bits; page 10, lines 1-7), but lacks that the encoded signal is compressed to include fixed codebook indices.

Crupi discloses that the encoded signal (encoded speech) is compressed (compressed) to include fixed codebook indices (implied in column 4, lines 16-17), to achieve efficiency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria in combination with Huang's apparatus and method such that the encoded signal is compressed to include fixed codebook indices, to achieve efficiency by saving transmission bits.

Regarding **claims 8, 20 and 41**, Mekuria in view of Huang discloses an apparatus and method wherein the parameters of the encoded signal have low inter-frame redundancy (Mekuria; crucial bits; page 10, lines 1-7), but lacks that the encoded signal is not compressed to include adaptive codebook indices.

Crupi discloses that the encoded signal is not compressed (not compressed) to include adaptive codebook indices (implied in column 4, lines 16-17), to prevent losses.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mekuria in combination with Huang's apparatus and method such that the encoded signal is not compressed to include adaptive codebook indices, to save transmission bits.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Canfield et al. (U.S. Patent No. 5,818,530) discloses a MPEG compatible decoder including a dual storage data reduction network.

- Fang et al. (U.S. Patent No. 5,598,354) discloses a motion video compressing system with neural network,

- Yang et al. (U.S. Patent No. 5,926,611) discloses a high resolution digital recorder and method using lossy and lossless compression technique.

9.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Jakieda R Jackson whose telephone number is
703.305.5593. The examiner can normally be reached on Monday through Friday from
7:30 a.m. to 5:00p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Doris To can be reached on 703. 305.4827. The fax phone number for the
organization where this application or proceeding is assigned is 703-872-9306.

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you have questions on access to the Private PAIR system, contact the Electronic
Business Center (EBC) at 866-217-9197 (toll-free).

JRJ
December 20, 2004

DAVID L. OMETZ
PRIMARY EXAMINER